



# China begins operating world's largest radio telescope

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PINGTANG COUNTY, China — The world's largest single-dish radio telescope officially began operating on Sunday in China, accompanied by jubilant national television coverage, after more than five years of construction.

The five-hundred-yard aperture spherical telescope, FAST for short, is intended to project China's scientific ambitions deep into the universe, bringing dramatic discoveries and honors like Nobel Prizes. Maybe even messages from aliens.

The telescope, which is in a majestic but impoverished part of Guizhou province, embodies China's plans to rise as a scientific power. The dish is made of 4,450 intricately positioned triangular panels and has a collecting area of 2.1 million square feet, equal to almost 450 basketball courts.

At 1,640 feet in diameter, it will be roughly twice as sensitive as the world's next-biggest single-dish radio telescope, the Arecibo Observatory in Puerto Rico, which is 1,000 feet across.

The \$184 million telescope will help China make "major advances and breakthroughs at the frontier of science," President Xi Jinping of China said Sunday.

Astronomers will use the Guizhou telescope to map the shape and formation of the universe, relying on its large size and a mobile detector suspended above the dish to explore space more quickly, deeply and thoroughly than smaller telescopes.

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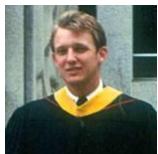
### Clinton and Trump manage expectations ahead of first debate

The candidates sent key aides forth Sunday to frame how the highly-anticipated event could unfold. [MORE...](#)



### Wash. mall shooting suspect had multiple arrests, disputes

Arcan Cetin, 20, is accused of killing five people Friday in a northern Washington state Macy's store. [MORE...](#)



### Even in college, Donald Trump was brash

Trump stood out early at college: as a bonfire of vanity, talent, and natural swagger, a millionaire, a student not quite as great as he recalls. [MORE...](#)



### A reading list for the first presidential debate

Essential stories from the Boston Globe on Hillary Clinton and Donald Trump ahead of the first presidential debate of 2016. [MORE...](#)



### Clinton, Trump meet with Netanyahu on Israeli relations

Hillary Clinton and Donald Trump met separately with the Israeli prime minister. [MORE...](#)



### For first time in more than 100 years, Union Leader doesn't back GOP

After assailing Donald Trump on a regular basis leading up to the state's primary, the N.H. newspaper is now going a step further. [MORE...](#)

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## Aboriginal DNA points to an earlier human exodus from Africa

Aboriginal people appear to be the oldest living civilization on the planet outside of Africa. [MORE...](#)

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## Vitriol overpowers diplomacy as UN meets hastily on Syria

The United Nations envoy for Syria pleaded on Sunday for the Security Council to halt what he called “new heights of horror.” [MORE...](#)

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## Former Trump executive had a penchant for theft

Over 30 years, Abraham Wallach collected at least 15 arrests in five states for crimes including forgery and grand larceny. [MORE...](#)

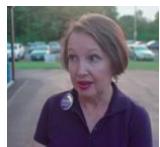
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## Gennifer Flowers won't attend debate, Trump campaign says

Donald Trump's campaign manager said Flowers has not been invited, despite Trump's suggestion that he might do so. [MORE...](#)

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## No racism before Obama? Top Trump volunteer resigns after that comment

Kathy Miller also blamed African Americans for problems in their community. [MORE...](#)

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## Doubts remain after Charlotte police shooting video released

Charlotte police have released body and dashboard camera footage of the fatal shooting of Keith Lamont Scott. [MORE...](#)

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## Comments **Secret Service appears to have broken protocol with Clinton's early departure from 9/11 event**

According to a former Secret Service agent, the detail was clearly rushing and did not expect for Hillary Clinton to leave at that time. [MORE...](#)

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## **Gaza underground wall to be done in months**

The massive underground barrier is being built along the Gaza border to defend against Hamas tunnels. [MORE...](#)

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JAN. 6, 2002 | PART 1 OF 2

## **Church allowed abuse by priest for years**

Why did it take a succession of three cardinals and many bishops 34 years to place children out of John J. Geoghan's reach? [MORE...](#)

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## **South Africa motorbike racing**

Not far from the refurbished F1 race track of Kyalami in Johannesburg, South Africa is a small, virtually dirt race track that attracts only the brave and rare "petrol heads" on some Sundays to race against each other in the hot sun for bragging rights and a trophy. The track is home to the Walkerville Speedway Racers Club that includes flat track racers, sidecar racers and a new breed; the Stof Kop (dust cup) racers. [MORE...](#)

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## **Moon shots**

The moon is captured by photographers from many different spots on earth, from different perspectives. [MORE...](#)

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## **Jordanian writer gunned down outside courthouse**

A security official said the alleged gunman was a former imam at a mosque who was offended by the writer's posting of a cartoon. [MORE...](#)

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Tonight's debate could prove the ultimate test of whether he can hold his nerve at Comments a critical moment. [MORE...](#)

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## For presidential hopefuls, simpler language resonates

By every criteria in a review of the language used by 19 presidential candidates, Donald Trump is speaking at the lowest level. [MORE...](#)

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## Paralympics 2016

Competing at many of the same Rio venues as participants in the summer Olympics, more than 4,000 athletes from 170 plus nations are taking part in the first edition of the South American Paralympic Games. The athletes compete in more than 20 sports that have various classifications, depending on an athlete's level of impairment. The Games conclude Sept. 18. [MORE...](#)

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## The US military is using controversial white phosphorous in Iraq — again

When launched against soldiers and civilians, the munition can cause severe burn wounds. [MORE...](#)

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## Globe photos of the month, August 2016

Here's a look at some of the best images taken by Globe photographers last month, including the Marshfield Fair, Red Bull Flugtag competition, a puppy swim, and the Caribbean Carnival Parade in Dorchester. [MORE...](#)

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## White House support for war crimes tribunal is lacking

Investigators and US diplomats say the Obama administration has done little to pursue prosecution of such crimes. [MORE...](#)

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Noela Rukundo sat in a car outside her home, watching as the last few mourners Comments filed out of her funeral. [MORE...](#)

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## Flooding in Louisiana

Louisiana continues to deal with the disastrous affects of historic flooding that killed at least 17 and destroyed about 60,000 homes. [MORE...](#)

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## George Washington's family legacy includes children born from slaves

Washington's adopted son, George Washington Parke Custis, had at least two children with slaves. [MORE...](#)

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## Deplorable? Trump more so than Clinton, poll finds

A new poll found that Hillary Clinton's stumble didn't have quite the impact that Donald Trump and his supporters wanted. [MORE...](#)

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## Reflection (Defined)

**reflection** (noun) 1. the throwing back by a body or surface of light, heat, or sound without absorbing it. *Editor's Note: "Defined" is an occasional series exploring the definitions of words via photography.* [MORE...](#)

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## Kelly Ayotte thwarting effort to retire old Air Force jet

The New Hampshire senator's husband flew the A-10, dubbed the Warthog, in Iraq and Afghanistan. [MORE...](#)

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## A camp of care

Finding safe, enriching, and affordable summer camp for typical children is often a challenge for parents. But for children with complex physical, behavioral, and intellectual needs, that

child can't stand independently doesn't mean they shouldn't get to hit a baseball," says [Comments](#) Franciscan CEO John D. Nash. "We're about focusing on possibilities, not the child's limitations." [MORE...](#)

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## In Maine, Clinton, Trump are in a tight race

Hillary Clinton leads Donald Trump in Maine by three percentage points, a new Colby College-Boston Globe poll shows. [MORE...](#)

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## Read the Charlotte police report on the fatal shooting of Keith Lamont Scott

To accompany the video, police also issued a "case update" on Saturday. It is published here, in its entirety. [MORE...](#)

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## San Francisco's Millennium Tower has sunk about 16 inches

The 58-story building's problems have produced a wide-eyed examination of whether the city properly monitored the frenetic skyscraper-building spree.

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## Michelle Obama doesn't seem to have much sympathy for Melania Trump

Is it hard out there for the candidates' spouses? Michelle Obama isn't so sure.

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## A battle against Islamic State fighters

"When everyone shouts 'Allahu Akbar' (God is Great) I know that a tank or a cannon will fire," says Reuters photographer Goran Tomasevic. He has been travelling to Libya since the 2011 revolution, seeking to capture the pain and politics of a country at war with itself. Since early May, Libyan fighters have been waging a stop-start battle to recapture Sirte from Islamic State. After advancing rapidly to the edge of the town, for the past few weeks they have been struggling to break down the resistance of militants encircled in the city center. "I am constantly following the Libya story and I am in touch with few friends in Misrata since 2011 - they keep me updated." Tomasevic says. "My goal is to cover the final battle for Sirte." [MORE...](#)



## Ted Kennedy's sons recall their father's legacy

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Convention. [MORE...](#)

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## Kuwait's heat may have set a record for the Eastern Hemisphere



Temperatures in Mitrabah, Kuwait, reached 129.2 degrees Fahrenheit. [MORE...](#)



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## It's time for Donald Trump to pledge to serve a single term

Maybe it is time for him to make a dramatic announcement: A pledge to only serve one term. [MORE...](#)



## After bombings, Trump and Clinton target each other

Hillary Clinton accused Donald Trump of giving "aid and comfort" to terrorists, while Trump branded her as a "weak and ineffective person." [MORE...](#)



## Donald Trump's airline went from opulence in the air to crash landing

Echoes of Trump Shuttle reverberate in the Trump presidential campaign. [MORE...](#)

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## 5,000-1 underdogs hoist English Premier League trophy

Leicester City, champion of England for the first time in its 132-year history, hoisted the Premier League champions trophy this past weekend as the team celebrated its improbable season. [MORE...](#)



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## The most important 30 minutes of the presidential election

Often the first question in the first debate can serve as a historical marker for the driving issue of the campaign — and the time. [MORE...](#)

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## Cities in the clouds

Here is a selection of images the Reuters news agency pulled from its files showing cities shrouded in weather that make them appear to be living among the clouds. [MORE...](#)

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## What Hillary Clinton and Donald Trump need to do to win the first debate

For either Donald Trump or Hillary Clinton to come away the clear winner, something pretty extraordinary needs to happen. [MORE...](#)

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## Is Brexit a crisis or an opportunity?

Europe has been “forged in crises,” as a founding father of the EU once put it. [MORE...](#)

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AMERICA ON EDGE

## Being white, and a minority, in Georgia

This year, in Norcross, Ga., and places like it, resentment has found its voice. [MORE...](#)

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## Kissing chickens is bad for your health, CDC warns

A not-insignificant share of poultry-keepers kiss their chickens and allow them into the living room, a trend that’s raising flags for health officials. [MORE...](#)

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JAN. 7, 2002 | PART 2 OF 2

## Geoghan preferred preying on poorer children

Psychiatric documents offer added insights into the Rev. John J. Geoghan's troubled mind and [Comments](#) the motivations behind his aberrant actions. [MORE...](#)

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## Motive in Washington mall shooting remains unclear

Arcan Cetin, 20, of Oak Harbor, Wash., is accused of gunning down five people Friday in a mall north of Seattle. [MORE...](#)

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## Video shows man's wife pleading with Charlotte police

A video of a deadly encounter between Charlotte police and Keith Scott shows his wife repeatedly telling officers he is not armed. [MORE...](#)

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## Meet the women behind Charlie Baker's budget

Women make up about 60 percent of leadership positions in a department often considered the spine of state government. [MORE...](#)

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## Cleveland man charged with 3 women's kidnapping, rape

Ariel Castro is suspected of keeping three women captive inside his decrepit house in Cleveland for a decade. [MORE...](#)

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## Istanbul airport attack

More than 40 people were killed and many more injured when multiple bombs were detonated at Istanbul's Ataturk International Airport by three attackers this week in Turkey. [MORE...](#)

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## Terror in Nice

At least 84 are dead and hundreds are wounded after a man drove a large truck into the crowd on the famous Promenade des Anglais celebrating Bastille Day in Nice, France. All around the world, people are expressing sadness and solidarity with France over the deadly attack.



## Comments Man warned to drop gun, Charlotte police chief says

Police said a black man was ordered to drop his gun before he was fatally shot by police, sparking unrest in the N.C. city. [MORE...](#)

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## Before gunfire, Dallas officers, protesters were posing for photos together

When shots rang out in Dallas Thursday night, a peaceful protest was turned into a scene of chaos. [MORE...](#)

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## FBI releases notes of its interviews with Hillary Clinton

Just weeks after news broke in 2015 that Hillary Clinton had kept a private e-mail account, an employee deleted some of her e-mails. [MORE...](#)

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## When will minorities be the majority?

Skeptics have begun to raise new questions about the inevitability of America's demographic shift. [MORE...](#)

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GROUND GAME

## Is the presidential election essentially over?

Every day that goes by without Donald Trump shaking up his campaign is one day closer to Hillary Clinton becoming the next president. [MORE...](#)

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## Ghosts from a failed system

Westborough State Hospital, formerly known as the Westborough Insane Hospital, was built in the 1800s on hope and compassion. But with little scientific knowledge of mental illness, institutions like Westborough eventually became wretched warehouses. Civil rights activists, disability rights lawyers and politicians made it their mission to end the harsh restrictions imposed on people with mental illness, and the remedy was to close institutions like Westborough, which was shuttered in 2010. As part of the [Spotlight team report on mental](#)

that technically these photographs have no people in them," Kreiter says, "but they're all right there. All these images contain the ghosts of the people who need our help the most." [MORE...](#)

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## Will Gennifer Flowers attend Monday's presidential debate?

Trump is threatening to bring Gennifer Flowers to the debate and seat her next to a Clinton guest he doesn't like. [MORE...](#)

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## Hype ahead of debate is taking on Super Bowl quality

Hillary Clinton and Donald Trump will meet in the first of three presidential debates Monday night. [MORE...](#)

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## Deadly earthquake hits Italy

Search and rescue crews are using whatever they can to locate survivors from a magnitude 6.2 earthquake that reduced three central Italian towns to rubble early today. The death toll stood at 120, but certainly will rise said officials. "The town isn't here anymore," said Sergio Pirozzi, the mayor of the hardest-hit town, Amatrice. [MORE...](#)

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## Will you be affected by the new overtime rules?

Any salaried employee earning less than \$47,476 will automatically be eligible for overtime pay under Obama's plan. [MORE...](#)

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## Back to school

A look at children around the world starting school after their summer break. [MORE...](#)

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## Napalm victim seeks relief from four decades of pain

In the photograph that made Kim Phuc a living symbol of the Vietnam War, her burns aren't visible. [MORE...](#)

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